Communications in

Mathematical Physics

Volume 129 1990

Chief Editor A. Jaffe, Cambridge, MA

Editorial Board M. Aizenman, New York, NY
H. Araki, Kyoto
A. Connes, Bures-sur-Yvette
J.-P. Eckmann, Genève
M. E. Fisher, College Park, MD
J. Fröhlich, Zürich
K. Gawedzki, Bures-sur-Yvette
J. L. Lebowitz, New Brunswick, NJ
J. Mather, Princeton, NJ
N. Yu. Reshetikhin, Cambridge, MA
B. Simon, Pasadena, CA
Ya. G. Sinai, Moscow
T. Spencer, Princeton, NJ
S.-T. Yau, Cambridge, MA

Advisory Board M. F. Atiyah, Oxford
F. Hirzebruch, Bonn
G. 't Hooft, Utrecht
R. Schrieffer, Santa Barbara, CA
I. Singer, Cambridge, MA
C. N. Yang, Stony Brook, NY

Springer International

Copyright
Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.
All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e. g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.
The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.
While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special regulations for photocopies in the USA:
Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. This fee is US $ 0.20 per page, or a minimum of US $ 1.00 if an article contains fewer than five pages. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0010-3616, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

Springer-Verlag Berlin Heidelberg New York Tokyo Hong Kong
Printers: Brühlsche Universitätsdruckerei, Giessen
Printed in Germany — © Springer-Verlag Berlin Heidelberg 1990
Springer-Verlag GmbH & Co KG, D-1000 Berlin 33

Contents

Albeverio, S., Cruzeiro, A.-B.: Global Flows with Invariant (Gibbs) Measures for Euler and Navier—Stokes Two Dimensional Fluids 431

Awada, M.: Quantum Geometry of Loops and the Exact Solubility of Non-Abelian Gauge Chern-Simons Theory — II 329

Barata, J. C. A.: On the Phase Structure of the Compact Abelian Lattice Higgs Model 511

Brüning, J., Peyerimhoff, N., Schröder, H.: The $\overline{\partial}$-Operator on Algebraic Curves 525

Brydges, D., Yau, H.-T.: Grad ϕ Perturbations of Massless Gaussian Fields 351

Buchholz, D., D'Antoni, C., Longo, R.: Nuclear Maps and Modular Structures II: Applications to Quantum Field Theory 115

Buchholz, D.: Harmonic Analysis of Local Operators 631

Constantin, P.: Navier—Stokes Equations and Area of Interfaces 241

Cruzeiro, A.-B. → Albeverio, S. 431

Cutler, C. D.: A Dynamical System with Integer Information Dimension and Fractal Correlation Exponent 621

D'Antoni, C. → Buchholz, D., et al. 115

Dijkgraaf, R., Witten, E.: Topological Gauge Theories and Group Cohomology 393

Emmrich, C., Römer, H.: Orbifolds as Configuration Spaces of Systems with Gauge Symmetries 69

Fuglede, B.: Integration on the n^{th} Power of a Hyperbolic Space in Terms of Invariants Under Diagonal Action of Isometries (Lorentz Transformations) 481

Fujii, K., Tanaka, M.: Universal Schwinger Cocycles of Current Algebras in $(D + 1)$-Dimensions: Geometry and Physics 267

Grünbaum, F. A.: Relating Microscopic and Macroscopic Parameters for a 3-Dimensional Random Walk 95

Hayashi, N., Saitoh, S.: Analyticity and Global Existence of Small Solutions to Some Nonlinear Schrödinger Equations 27

Its, A. R., Izergin, A. G., Korepin, V. E.: Temperature Correlators of the Impenetrable Bose Gas as an Integrable System 205

Izergin, A. G. → Its, A. R., et al. 205

Jonker, L. B.: The Scaling of Arnol'd Tongues for Differentiable Homeomorphisms of the Circle 1

Kapouleas, N.: Slowly Rotating Drops 139

Korepin, V. E., Slavnov, N. A.: The Time Dependent Correlation Function of an Impenetrable Bose Gas as a Fredholm Minor. *I* 103

Korepin, V. E. → Its, A. R., et al. 205

Krámli, A., Simányi, N., Szász, D.: A "Transversal" Fundamental Theorem for Semi-Dispersing Billiards 535

Longo, R. → Buchholz, D., et al. 115

Martin, A.: New Results on the Moments of the Eigenvalues of the Schrödinger Hamiltonian and Applications 161

Merle, F.: Construction of Solutions with Exactly k Blow-up Points for the Schrödinger Equation with Critical Nonlinearity 223

Peyerimhoff, N. → Brüning, J., et al. 525

Pileckas, K., Zajaczkowski, W. M.: On the Free Boundary Problem for Stationary Compressible Navier—Stokes Equations 169

Rezakhanlou, F.: Hydrodynamic Limit for a System with Finite Range Interactions 445

Römer, H. → Emmrich, C. 69

Saitoh, S. → Hayashi, N. 27
Schröder, H. → Brüning, J., et al. 525
Simányi, N. → Krámli, A., et al. 535
Slavnov, N. A. → Korepin, V. E. 103
Socolar, J. E. S.: Weak Matching Rules for Quasicrystals 599
Solovej, J. P.: Universality in the Thomas-Fermi-von Weizsäcker Model of Atoms and Molecules 561
Szász, D. → Krámli, A., et al. 535

Takebe, T.: Toda Lattice Hierarchy and Conservation Laws 281
Tanaka, M. → Fujii, K. 267

Witten, E. → Dijkgraaf, R. 393
Wojtkowski, M. P.: Linearly Stable Orbits in 3 Dimensional Billiards 319

Yau, H.-T. → Brydges, D. 351

Zajaczkowski, W. M. → Pileckas, K. 169
Zucchini, R.: An Operator Formulation of Orbifold Conformal Field Theory 43

Indexed in *Current Contents*
Evaluated and abstracted for *PHYS* on *STN*